SCIENCE

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THE PERSISTENCY OF FAMILY TRAITS.

NOT long ago we met a young friend, a bright, charming fellow, who said he was a student of ancestry. Having a weakness in that direction ourselves, we soon became engaged in conversation upon subjects of mutual interest until we remarked upon the extraordinary persistency of peculiar traits in members of the same family for long periods of time. To our astonishment he immediately informed us that the notion that there is such a thing as "family traits" had been consigned by all the leading genealogists to the realm of myths, and that there is positively no such thing to be met with in human experience. He proceeded to state that old people with active imaginations and defective sight and hearing thought they saw in their descendants the peculiar traits that in youth they had noted in their ancestors. Take from this, he says, the element of imagination, and there remains nothing but the recurrence of the traits of character common to humanity, and that once in a brief interval of time are emphasized in individuals.

He then produced a genealogical chart that showed the ancestors of A. B. through nine generations. A. B. was a direct descendant from L. B., who came from England early in the seventeenth century, about 250 years ago. The chart was of the usual semicircular form, with A. B. in the centre, and arranged in concentric semicircles, each semicircle devoted to a generation, with the right quadrant devoted to the ancestry on one side and the left quadrant devoted to those on the other. Of course, if such a chart was complete, as they very seldom are, the second semicircle would contain the names of two parents, the third of four grandparents, the fourth of eight great-grandparents, the fifth of sixteen, the sixth of thirty-two, the seventh of sixty-four, the eighth of one hundred and twenty-eight, and the ninth of two hundred and fifty-six. The whole number is five hundred and eleven individual ancestors of both sexes in nine generations. Assuming that no marriages took place between parties of even remote relationship, which is not likely to occur when the nine generations remain locally in the same neighborhood, the chart would show five hundred and ten ancestors, among which the direct line of B. comprised nine individuals, and occupied a perpendicular line in the centre of the chart.

"Now," says my friend triumphantly, "do you suppose that that line, mixed with nearly five hundred other lines, will preserve anything originally characteristic of it? The idea is preposterous." He continued further, "You will admit that ancestry consists of two elements, heredity and environment. In this case the environment has been the general conditions of New England farm and village life — practically the same; we can therefore leave that out. Now, heredity remains; do you suppose that anything peculiar remains in A. B. of any one of the two hundred and fifty ancestors from whom he is descended in the eighth generation from his own?" We answered, most emphatically, "Yes; and they would chiefly lie in the perpendicular line of B." To this declaration he dissented with equal emphasis, and appealed to the chart to prove it. We admitted that, as a geometrical demonstration, the chart was unanswerable, and urged without avail the fallacy of submitting a problem in biology and psychology to mathematical proof. The chart was, he assured us, the genealogist's compass and pole-star, from which there was no appeal.

Further conversation led to numerous citations of examples from our own knowledge and experience, which has been widely extended for many years among the descendants of John Doe. These examples, he assured us, were all mere coincidences that would cease to be examples beyond the range of the present generation; that, generally speaking, no man's knowledge extended beyond his grandfather, and that so-called family traits were eliminated by ignoring the great mass of dissimilars, and exaggerating the importance of the few similars. Finally, he challenged us to show that our examples proved anything beyond the observation of a few coincidences.

The problem briefly stated is this: Do persons bearing the same surname and remotely of the same family exhibit traits of character that are common, or in any sense to be considered as "family traits?" The facts within our observation and knowledge we believe to be susceptible of explanation upon a purely scientific basis of well-established principles, without any recourse to either imagination or chance coincidence. John Doe settled in one of the New England colonies about 250 years ago. The name is common among the middle-class English and is very old, one of the name having held a high ecclesiastical position in the thirteenth century, and others appearing among the lesser nobility a few centuries later. John Doe had a numerous family, of which five sons married, and have descendants now living in localities not far apart in New England and in many localities west of the Hudson River. There are descendants of these different brothers living as neighbors in several instances who do not know that they share a common ancestry. Now, it is or is not a matter of fact and observation whether these people, bearing a common surname and descended through from five to eight generations from a common ancestor, exhibit certain traits, or rather a combination of certain traits, which may be called in the aggregate a "Doe character." From our knowledge of the family taken as a whole, that is, the descendants of the five brothers taken together, we declare that there is an unmistakable "Doe character."

If you ask us to describe this character we must decline to do so. It is not necessary. Like all human character it is a mixture of good and bad. Moreover, it might be recognized, and we might be restrained from exhibiting our thesis with scientific clearness and precision. Again, there are subtle elements of human character that defy adequate expression in words, and yet are quickly recognized. Nevertheless, we will state how it has been proved to us as an individual: In the first place, by our own observation directed for several years by a knowledge of certain principles acquired in breeding animals; again by remarks made to us, neither solicited nor suggested by us, by members of the "Doe family," who had no knowledge of each other's exis-

tence, and who were separated by from five to seven generations; again, by similar judgments passed, not upon individual "Does," but upon the "Does" as a whole, by women who had married "Does," having no knowledge of each other's existence, and whose judgments had been passed upon different generations of "Does."

If "family traits" are a delusion to be explained away by the dilution of a geometrical chart amounting to one two hundred and fiftieth in eight generations, why can independent outside observers, the Does themselves and the women who marry Does, recognize a Doe character in the eighth generation? It is simply because heredity does not involve geometrical elements, in reality is only very inadequately represented by geometry.

Of what, then, does heredity consist? Of a vast number of extremely subtle influences determined by laws as yet but dimly comprehended, but few of which have as yet found adequate expression. Among others there are three laws or principles for which we do not know any name, but which, in their effects, are generally recognized among breeders of animals. First among these may be named the influence of race, which among breeders of animals would be equivalent to "a breed" and the varieties within it. A genealogical register of a family bearing a surname found among the seventeenth century settlers of New England may be fitly compared to the pedigree of any family of thoroughbreds, as, for instance, the St. Lamberts among Jerseys, or the Douglas among Ayrshires. It is often said that human beings are as to their breeding mongrels; but such a statement is not generally true, nor is it particularly true when applied to the better class of families who from the English middle class came to this country 250 years ago, and have here with a goodly showing of self-respect intermarried almost or quite exclusively in their own rank of social, religious, and political race. There has thus grown up under unwritten social customs a race, or breed, of New England citizens of pure English ancestry as carefully bred as to race and as to families within the race as any breed of thoroughbred cattle, a century older than the oldest breed in the world. Many of these families run back for several centuries in England before they emigrated to this country. We may, therefore, expect to find, and do find if we know where to look for them, the same effects of race that are observed in thoroughbred cattle, namely, persistency of race types as to the whole and of family types as to families. This persistency in the race is maintained through the persistency of the family type, and the family type is perpetuated by breeders through conformity with biological principles that, so far as is known, are active among all domesticated animals, and man considered as an animal.

It is a well-recognized fact that the first pregnancy of a female is of much greater importance as determining the character of her offspring than any and all others, and also that the influence of the male as determining the character of the offspring increases with each successive pregnancy of the female by the same male. Every breeder of cattle knows that a pure-bred heifer that is first coupled with a mongrel bull is ruined for breeding purposes, as the impression and characteristics of the first male will appear in the offspring of every succeeding pregnancy. A mare that is first coupled with a jack and gives birth to a mule will afterwards, when coupled with a stallion, give birth to horses with long ears and scant tails and saddle-marks across the shoulders and stripes upon the legs resembling mules. Horses marked in this way are very common in regions where mules are produced. A very handsome Morgan mare was once owned by an acquaintance of the writer that possessed unusual speed and great endurance. The condition of her udder showed that she had once borne a foal. She was coupled with a very fine thoroughbred stallion, and brought forth a perfectly worthless Canadian scrub, without a single characteristic of either parent.

Among human beings the infrequent marriage of widows as compared with the whole number of marriages renders a reference to examples in demonstration of this law of heredity somewhat difficult. Cases are not wanting, however, where women of high character have unfortunately married profligate first husbands, and have sought in a second marriage with men of honor to realize the happiness of which they had been deprived, only to see in bitterness the vices of the first husband return to curse them in the offspring of the second union. In less unfortunate marriages of this character the father fails to recognize in the aliens around his board either the virtues or vices of his kindred, and the personal appearance of his children is as foreign as their other characteristics.

The conditions under which animals are bred offer but few opportunities to demonstrate the increasing influence of the same male through successive impregnation of the same female. Among human beings illustrations are very numerous. Certain aspects of this case — perhaps the lowest — the marriage of colored women with white men and colored men with white women, are the most remarkable. Among the children of such unions the influence of the white man upon the colored woman produces a series of types with more or less strongly marked negro features and a successively lighter skin until a nearly white negro is produced, an example of which we once saw in Louisville, Ky., much more repulsive in appearance than a veritable negro. When a colored man marries a white woman a series of increasingly black children is the result. The children of such unions are in every sense mongrels, and are found to resemble in many respects mongrels among animals.

In every family that can be studied in successive generations the action of this principle explains many seemingly inexplicable facts. To go back to the descendants of John Doe, we have asserted without any fear of possible contradiction that there are "family traits" that may be observed among those who are separated from a common ancestor by six or seven generations. In one case among them a most extraordinary personal likeness was preserved through three generations. They were the fifth, sixth, and seventh generations from John Doe; they were the fifth, third, and fourth children of their respective parents. In the eighth generation the type was continued in the first child, but it is much less marked, and in the ninth generation, the son being the second child, with the influence of the mother very strong. Still, in both the eighth and ninth generations the Doe traits are unmistakably present. In the ninth generation the fourth child is a daughter, and generally admitted to be a Doe in every fibre of her being. Here is another case from the Does. In the sixth, seventh, eighth, and ninth generations a daughter has appeared in the relations of niece, aunt, great-aunt, and great-great-aunt. We have known them all. In the sixth generation she was the second child, in the seventh the sixth child, in the eighth the fifth child, and in the ninth the third child. They were and are all lighter in complexion than the others of their respective families, with a peculiar cast of features, resembling each other more than they resemble their mothers or sisters. They

also possessed in common certain temperamental peculiarities, and their voices would instantly remind the hearer of each other.

Now to go back to our friend's chart, where the perpendicular line represents nine successive male Does. If every one of these eight male Does was a first child of each successive marriage, the Doe influence would be at a minimum and the transmission of the peculiar traits of the Does most feeble and uncertain. If each one of the eight was the youngest child in a family of six, the persistency of Doe traits would become more intense with each successive generation. For some purposes the tradition of the seventh son of the seventh son becomes something more than a mere superstition. If, however, in the third or fourth generation the surname was transmitted by a son whose father was the second husband of a widow who had borne children by a former husband, the family traits of the Does would doubtless be conspicuous by their absence. There have been no such marriages in the line of Does above mentioned for eight generations.

Too little is known concerning this subtle and intricate question to enable one to venture an estimate of the percentage of tendency towards family traits along the line of nine Does as compared with any other line from any given individual of the two hundred and fifty of the first generation from the ninth; but we think the challenge of our friend has been accepted and met, and sufficient proof has been submitted to show to any candid mind that a vastly greater proportion than one two hundred and fiftieth may be expected to flow along the line represented by the eight individuals who transmit the surname from the first to the ninth generations. Indeed, we think we are treading on solid ground when we assert that in the letters written by the Doe who was an ecclesiastic of the thirteenth century, and which have come down through six hundred years to the present time, the "Doe traits" are strikingly evident.

We should be gratified to learn if others familiar with other families than the Does are not fully satisfied that "family traits" are very persistent along the line of the surname.

AN ENQUIRER.

"SCIENTIFIC" GENEALOGY — A REJOINDER.

FROM the commencement of interest in the history of old American families the marked tendency has been, and is, for the chronicler to depart from the strict records, and attempt to trace reputed traits and oftentimes marked physical characteristics of the original emigrant ancestor and founder of the family through eight and nine generations, and connect the aforesaid qualities with the persons now bearing the surname descended from him. And a pride in one's ancestry is not reprehensible so far as these ancestors were healthy, energetic, honorable citizens, not less as honoring them than as taking satisfaction in the probably clear minds and strong constitutions we inherit, barring an untoward environment. But where the historian, considering a living person's little tricks of habit, peculiarities of appearance, and the like, ascribes these as in fact undoubtedly inherited from the original ancestor of nine generations previous, it becomes necessary to direct the attention of the sincere seeker for truth to certain self-evident truths, which are none the less patent and far-reaching, if comparatively unheeded and little studied in the past. To instance an average case: John Brown is a living person of the ninth generation from the first James Brown, who, we will suppose, came to this country about 1630. A simple mathematical computation shows that John Brown has had 510 distinct ancestors in these generations, of whom, at a liberal estimate, 50 may be duplicates owing to intermarriage of relatives. If there is a person in New England who can state his ancestry since 1630 completely with proofs, the writer, after some years careful research and acquaintance with men pursuing such study, has failed to discover him. As a matter of fact, the genealogist who has discovered and proved half his grandparents is exceedingly uncommon, and probably not one-twentieth of the persons who have chronicled the genealogy of a surname have known over 50 of their ancestors. They have paid, usually, almost their entire attention to the one surname in which they were interested and which filled their mind to the exclusion of the greater number.

In the writer's opinion he probably inherits from the 256 emigrant ancestors such a blending of qualities and physical characteristics, that to ascribe peculiar traits of any particular one of them to a living descendant is a fallacy, unsupported by reliable circumstantial evidence and persisted in in spite of the fact that the 255 other ancestors of the first American generation had qualities and traits of which he knows nothing, nor even the names of most; and probably, as far as the historian can surmise, each of the other 255 were fully as instrumental in bequeathing peculiar qualities, etc., as the one whose surname sexual distinction has given him. How does the matter look faced in the following manner? James Brown was one of 256 of John Brown's original American ancestors; is it likely or probable or a desirable thing for a genealogist to prove that $\frac{1}{256}$ part of the whole, when, as far as mortal can tell, all had probably much the same influence on the descendant, that this $\frac{1}{256}$ part has determined in a prominent and noticeable way the identity of the descendant? If one of the 256 were a person of color, an African, in the fourth generation, much more the ninth, the scientists tell us the color trace is well-nigh obliterated as far as discoverable. The writer does not for a moment combat the well exhibited inheritance of peculiar appearance and traits of a man from his father or mother, his grandparents or great-grandparents, or in rare cases from great-great-grandparents, but beyond these limits the historian has little to encourage him in his attempt beyond uncertain and traditionary tales.

The writer is descended from two ancestors, for both of whom the respective historians have claimed qualities and pronounced appearances of person, and remarked them prominently in all the living descendants; and the writer as yet fails to discover, after a candid if somewhat anxious self-examination, any of these characteristics. How often the mother's relatives fondly see clearly her look, her habits and character in a child for whom the father's family claim the self-same points; and the writer is familiar with the facts in a case where well-meaning friends have told parents of the strong likeness a child bore them, not knowing the child to be of entirely foreign parentage — adopted. My experience has been that a good part of the grounds for the side of the question I disbelieve in are as insecure as those just instanced. It is an old saying that one finds what he seeks for; that is, he thinks he finds it, which answers the same purpose for him.

To compare the human race to any of the brute creation as regards this question is unjust and mistaken, as in selection, cohabitation, and kindred vital processes, the cow — for instance, of Jersey or other strain — has the advantage of careful and long-continued selected inbreeding, where the human being is the result (even for nine generations) of over